

AUTOMATIC DESIGN OF PROCESSOR DATAPATHS**Abstract of the Disclosure**

5 A method for the automatic design of processor datapaths
operates on an abstract input specification of desired processor
operations and their instruction level parallelism and synthesizes a
datapath design in machine readable form. A datapath synthesizer
automatically designs and synthesizes the processor datapath including
the number and types of functional units, the number of read/write ports
10 of the various register files, and the exact connectivity between the
register files and the functional units. The heuristics used in the
implementation maximize resource sharing and minimize the overall cost
by customizing and sharing functional units and minimizing the number
of read/write ports on the register files subject to the specified ILP
15 among operations.

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